

## NOTES ON THE GENUS HOMORANTHUS (MYRTACEAE) IN AUSTRALIA

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### Summary

Three new species of *Homoranthus*, *H. papillatus*, *H. decaseetus* and *H. tropicus* are described and a key to the species in the genus is given. Notes on the salient characteristics of the genus and each species with some notes on distribution are included.

The genus *Homoranthus* is not a clearly defined natural group but is more a genus of convenience intermediate between *Darwinia* and *Verticordia*. This was first discussed by Bentham (1869) when in the section on *Homoranthus* in his notes on Myrtaceae he stated "Its retention may, however, be justified as facilitating the distinction between *Darwinia* and *Verticordia*."

Cheel (1922) discussed the status of *Darwinia*, *Homoranthus*, *Rylstonea* and *Verticordia* giving the history of the origin of each of the genera and morphology of the groups. As a result of this study he united the genus *Rylstonea* with *Homoranthus* and transferred two species of *Verticordia* (*V. darwinioides* and *V. wilhelmii*) to *Homoranthus*. This transfer of species enabled a more natural separation of *Verticordia* from *Darwinia* and *Homoranthus* based on calyx shape.

Since Cheel's paper no one has advanced a more precise segregation of the genera. Chromosome numbers for three species of *Homoranthus* are given as  $n = 9$  by Smith-White (1954) in a paper which included the same haploid number for some species of *Verticordia* and *Darwinia*.

Two of the three species described here under *Homoranthus* are additional examples in the continuum between *Darwinia* and *Verticordia* particularly in respect of the appendages of the calyx lobes.

With the study of additional species to be referred to *Homoranthus* in this paper, the characters found most useful for separating the genera are given in the following key.

Calyx tube hemispherical, lobes deeply divided into subulate, plumose or ciliate processes. . . . .	<i>Verticordia</i>
Calyx tube cylindrical or urceolate, each lobe with a single subulate process or digitately divided into 2-10 processes. . . . .	<i>Homoranthus</i>
Calyx tube cylindrical, lobes broad, entire or shortly ciliate. . . . .	<i>Darwinia</i>

### **Homoranthus** Cunn. ex Schau.

Shrubs erect or spreading. Leaves opposite, shortly petiolate or almost sessile, linear, triangular or terete, usually laterally compressed. Inflorescences various. Bracts usually similar to leaves but commonly smaller, sometimes scale-like. Bracteoles 2, concave, sometimes with a keel ending in a short point. Floral tube cylindrical or urceolate, the lower part adnate to the ovary and with 5 distinct longitudinal ridges, upper part free, thin, usually smooth, persistent. Calyx lobes 5, with 1-10 elongated processes on each lobe. Petals 5, entire. Stamens 10; filaments linear; anthers globular, dehiscing by pores. Staminodes 10, alternating with stamens. Style exceeding the perianth, bearing a ring of hairs below the apex. Ovary unilocular with 2-10 ovules borne on a basal placenta.

**Type species.** *H. virgatus* Cunn. ex Schau. Bentham in effect nominated this as the type species when he reduced the genus to a single species in Fl. Aust. 3:16 (1869).

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|----|---|--------------------------|
| 1a | Calyx with two elongated hair-like processes on each lobe.....                        | 4. <i>H. decaseus</i>    |
| 1b | Calyx with only one elongated hair-like process on each lobe.....                     | 2                        |
| 1c | Calyx with 3-10 elongated hairlike processes on each lobe.....                        | 4                        |
| 2a | Leaves densely covered with very short trichomes.....                                 | 3. <i>H. papillatus</i>  |
| 2b | Leaves glabrous.....  | 3                        |
| 3a | Style exceeding petals by more than 4 mm; shrub usually spreading.....                | 2. <i>H. flavescens</i>  |
| 3b | Style exceeding petals by less than 3 mm; shrub erect.....                            | 1. <i>H. virgatus</i>    |
| 4a | Flowers borne in pairs on axillary peduncles.....                                     | 5. <i>H. darwinoides</i> |
| 4b | Flowers borne in leafy racemes, heads or panicles.....                                | 5                        |
| 5a | Hair-like processes 3-6 on each calyx lobes; petals ovate.....                        | 6. <i>H. wilhelmii</i>   |
| 5b | Hair-like processes 5-10 on each calyx lobe; petals broadly obovate or orbicular..... | 7. <i>H. tropicus</i>    |

### 1. *Homoranthus virgatus* Cunn ex Schau., Myrt. Xeroc. 41 (1842).

Although Bentham (1866) combined this species with *H. flavescens*, the two are distinct entities and grow in different habitats. *H. virgatus* is an erect virgate shrub with leaves not as conspicuously punctate as *H. flavescens* and the flowers have shorter styles.

This species is usually confined in its distribution to the sandstone, sandhills or "wallum" complexes along the coastal fringe from Shoalwater Bay, Queensland to Taree, New South Wales. One collection (*Hando* 114) is from Gurulmundi, Darling Downs district.

### 2. *Homoranthus flavescens* Cunn. ex Schau., Myrt. Xeroc. 40 (1842).

In habit the species occurs as a spreading glaucous shrubs rarely erect often attaining a diameter exceeding 1 m yet being less than 40 cms high. It is found in a variety of soils on the western slopes of the Great Dividing Range from near Chinchilla, Queensland to the Liverpool Range in New South Wales.

### 3. *Homoranthus papillatus* N. Byrnes sp. nov. affinis *H. virgato* Cunn. ex Schau. et *H. flavesci* Cunn. ex Schau. sed foliis papillatis differt. **Typus:** McDonald 1623.

Frutex compactus, ad 2 m altus. Folia opposita, petiolis brevissimis, linearia, falcata, trigona, 0.6-1.2 cm longa, ca 1 mm lata et crassa, acuta vel acuminata, glauca, punctata (plerumque obscura); epidermis papillata. Flores solitarii in axillis superas foliorum in pedicellos 1-2 mm longos. Bracteolae alabastrum includentes, ad 5 mm longae, scariosae, caducae. Calycis tubus 4 mm longus, 1 mm diam., glaber, nitidus, laevis, manifeste 5-costatus. Calycis lobi subulati, ad 3 mm longi. Petala orbiculata, ca 1 mm diam. Stamina 10, filamentis ca 0.5 mm longis. Staminodia 10, ca 0.5 mm longa. Stylus 6-9 mm longus. Ovarium uniloculare, placentione basilari, ovulis 8-10. Fructus siccus, flori similis, seminis 1-2 alatis.

Shrub compact to 2 m high. Leaves opposite, very shortly petiolate, linear, falcate, trigonous, 0.6-1.2 cm long, about 1 mm wide and **thick**, acute or acuminate, punctate (sometimes obscure) with a papillate epidermis. **Flowers** solitary in the upper leaf axils on pedicels 1-2 mm long. Bracteoles enclosing the flower buds, to 5 mm long, scarious, caducous. Calyx tube 4 mm long, 1 mm diam, glabrous, shiny, smooth, distinctly 5-ribbed. Calyx lobes subulate to 3 mm long. Petals orbicular, about 1 mm diam. Stamens 10 with filaments about 0.5 mm long. Staminodes 10 about 0.5 mm long. Style 6-9 mm long. Ovary unilocular containing 8-10 ovules borne on a basal placenta. Fruit dry, similar to the flower containing 1-2 winged seeds.

**Queensland.** DARLING DOWNS DISTRICT: Mt Norman, Girraween National Park, Sep 1976, *McDonald* 1623 (holo, BRI; iso, CANB, K, NSW, L, MEL); Nov 1944, *Clemens* (BRI), Oct 1959, *Henderson* (BRI), Jun 1962, Sep 1963, Dec 1970, *Hockings* (BRI), Oct 1970, *Ryan* (BRI), Nov 1971, *Blake* 23712 (BRI), Sep 1975, *Stanley and Sharpe* (BRI).

**Range.** This species apparently has a very restricted range as all collections and sightings of the plant have been in the Girraween National Park area.

**Habitat.** This plant occurs in shallow gritty soils in crevices and flat areas among granite boulders.

Its restricted range and its similarity to *H. virgatus* and *H. flavescens* has contributed to this species being overlooked till quite recently. The outer walls of the cells of the epidermis of leaves, pedicels and branches are raised into projections of various shapes, mostly as very short hairs. These projections are dense and can readily be seen with the aid of a lens. These structures enable this species to be recognised even when sterile. In addition, plants of *H. papillatus* are usually more compact and glaucous than other members of the genus.

**4. *Homoranthus decasetus* N. Byrnes sp. nov. affinis *H. virgato* Cunn. ex Schau. sed tubo calycis urceolata et lobis calycis differt. **Typus:** *Olsen and Byrnes* 3546.**

Frutex ad 2 m altus. Folia opposita breviter petiolata, clavata, teretia, falcata, breviter apiculata, ad 12 mm longa, ca 1 mm lata, punctata. Flores unici ad apicem ramulorum axillarium brevium. Bracteolae caducae, alabastrum juvenam includentes, ad 3 mm longae, carina in acumen distinctum desinens. Tubus calycis urceolatus, costis 5 prominentibus infra medium. Lobi calycis unusquisque 2 (raro 3) processibus subulatis ad 4 mm longis. Petala orbicularia, ca 2 mm diam. Stamina et staminodia uterque 10; alternantia ca 1 mm longa prope basin connata, affixa ad calycem ad basim. Stylus 14–18 mm longus. Ovarium ca 2 mm longum, uniloculare, placenta secunda, ovulis 8. Fructus siccus, flori simili sed leviter grandioris, semine solitario alato.

Shrub to 2 m high. Leaves opposite, shortly petiolate, clavate, terete, falcate, shortly apiculate, to 12 mm long, about 1 mm wide, punctate (barely visible to naked eye). Flowers solitary at the tips of short axillary branches. Bracteoles to 3 mm long enclosing the young flower buds and each with a keel ending in a short point, caducous. Calyx tube urceolate, strongly 5 ribbed below the middle. Calyx lobes each with 2 (rarely 3) subulate processes to 4 mm long. Petals orbicular, about 2 mm diam. Stamens and staminodes 10 of each, alternating, about 1 mm long, connate below and attached to the base of the calyx lobes. Style 14–18 mm long. Ovary about 2 mm long, unilocular with 8 ovules on a secund placenta. Fruit dry, similar to the flower but slightly enlarged and containing a single winged seed.

**Queensland.** LEICHHARDT DISTRICT: Isla Gorge, May 1977, *Olsen and Byrnes* 3547 & 3546 (holo, BRI; iso, CANB, NSW, Mel, K, P), Sep 1968, *Everist* 8037 (BRI), Apr 1971, *Hockings* (BRI).

**Range.** This species is apparently confined to Isla Gorge and its vicinity.

**Habitat.** The plants are found on shallow soils in areas of dissected sandstone.

The flowers of this species are distinct from those of other members of the genus by being noticeably constricted above the middle, having two processes on each calyx lobe and by being borne singly and erectly at the end of short branchlets. Exposure to direct sunlight causes the flowers to change from white to red.

**5. *Homoranthus darwinioides* (Maiden & Betche) Cheel, Proc. Linn. Soc. N.S.W. 54:77 (1922).**

*Verticordia darwinioides* Maiden & Betche, J. Linn. Soc. N.S.W. 3:17 (1898).

*Rylstonea cernua* R.T. Baker, J. Linn. Soc. N.S.W. 3:768 (1898).

This species occurs as a slender glabrous shrub characterised by its distinctive pendulous inflorescences, each consisting of two flowers on an axillary peduncle. The bracteoles are more persistent in this species than those of other members of the genus.

It has been collected on the Great Dividing Range and Central Western Slopes of NSW between Putty and Dubbo.

**6. *Homoranthus wilhelmii*** (F. Muell.) Cheel, Proc. Linn. Soc. N.S.W. 54:77 (1922).  
*Verticordia wilhelmii* F. Muell. Trans. Vic. Inst. 122 (1855).

This species occurs as a slender erect shrub with dense terminal leafy corymbs. Each calyx lobes has 3–6 (usually 5) setae. It is restricted to the area from the southern part of Eyre Peninsula to Streaky Bay in South Australia.

**7. *Homoranthus tropicus*** N. Byrnes sp. nov. affinis *H. wilhelmii* (F. Muell.) Cheel sed petalo late obovato et sepalis ferentes plus projecturas differt. **Typus:** Byrnes 3359.

Frutex ad 1 m altus. Folia opposita, lateraliter compressa, clavata, falcata, apiculata, basi petiolo breve angustata, 4–8 mm longa, ca 0.5 mm lata, punctata. Flores albi, axillares in pedicellis 0.5–1.5 mm longos. Bracteolae 1–1.5 mm longae, carina in acumen breve desinens, caducae. Tubus calycis ad 4 mm longus distincte 5-angulatus. Lobi calycis palmati projecturis 5–10 longis et angustis. Petala integra, late obovata vel fere circularis; ca 2 mm longa. Stamina et staminodi 2–3 mm longa, per ultra  $\frac{2}{3}$  longitudinalis in tubum connata. Stylus ad 7 mm longus, tomentellus apicem versus. Ovarium uniloculare, placentae basalis ovulis 8–10 ad latus unum affixa. Fructus in calyce leviter acto contentus, semine solitario globoso.

Shrub to 1 m high. Leaves opposite, laterally compressed, clavate, falcate, apiculate, at the base tapering into a short petiole, 4–8 mm long, about 0.5 mm wide, punctate. Flowers white, on pedicels 0.5–1.5 mm long. Bracteoles 1–1.5 mm long, each with a keel ending in a short point, caducous. Calyx tube to 4 mm long with five distinct angles. Calyx lobes 3–4 mm long, palmately lobed, each with 5–10 long narrow projections. Petals entire, broadly obovate to nearly circular about 2 mm long. Stamens and staminodes 2–3 mm long, fused into a tube for more than  $\frac{2}{3}$  of their length. Style to 7 mm long with minute stiff hairs below the apex. Ovary unilocular containing 8–10 ovules borne on one side of a basal placenta. Fruit contained in the slightly enlarged calyx, with a single spherical seed.

**Queensland.** COOK DISTRICT: Laura sandstone area north of Laura R. near Early Man site, May 1975, Byrnes 3359 (holo, BRI; iso, CANB, K, NSW); near Laura R., Aug 1974, Byrnes 3078 (BRI); 10 miles from Laura towards Lakeland Downs, Jun 1972, Wrigley and Telford NQ 1470 (NSW); Garden Ck (Little Laura R.), Feb 1978, Hinton 89 (BRI).

**Range.** This species is represented by only four collections all from sandstone areas near Laura. Further collections are likely to be made from other sites in the extensive sandstone formations in this area.

**Habitat.** This species grows in shallow sandy soils in areas near cliffs and on eroded creek banks.

Of all the species of *Homoranthus*, *H. tropicus* has the largest number of setae on the calyx lobes. This character associated with the broader petals are the principal differences between this species and the closely related *H. wilhelmii*.

*H. tropicus* is not common in the area from where collections have been made.

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